CEB:ELS
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Letter
Circular
LC 84

DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
Washington, D.C.

(February 9, 1923)

tion Section
of Standards, Washington

TESTS OF PNEUMATIC TIRES & INNER TUBES.

In the Spring of 1922, the various tire companies were requested by the Federal Purchase Board to submit samples of their tires and inner tubes, to be in accordance with Bureau of Standards Circular 115, to the end that they might be placed on the government list, as being eligible to bid for government business.

The Bureau has compiled the results of the tests made on these tires and inner tubes in two tables inclosed herewith. The tests were made in the manner described in Circular No. 38, of the Bureau of Standards, and the results include the complete physical tests and chemical analysis.

It is thought that this information may be of value to the industry.

BUREAU OF STANDARDS.

Lab No.	Size	Color	Pole Diameter	Thickness	Length	Tensile Strength Lb. per sq. in.	Ult. Elong %	Set %	Act Ext. (Corr)	Total Sulphur	R. as compound	R. by vol.	Ratio Act Ext/R.	Ratio S/R.	
						Class A									Pure Gum
2393	30x3½	Grey	2.10	.090	81⅞	3215	810	0	4.1	4.1	89.4	94.0	4.6	4.6	
2658	30x3½	Brown	2.10	.065	Section	3060	740	8.0	4.1	6.4	79.6	90.9	5.2	8.0	
2296	33x4	Grey	2.38	.077	88¼	2015	760	4.0	3.0	2.5	86.1	95.3	3.5	2.9	
2444	30x3½	Grey	2.18	.073	81⅛	2865	865	0	2.8	5.4	91.4	93.5	3.1	5.9	
2452	30x3½	Grey	2.24	.068	79¾	2430	775	0	2.5	3.2	86.3	94.6	2.9	3.7	
2377	30x3½	Brown	2.20	.090	80	2960	730	2.0	2.6	2.9	89.7	92.9	2.8	3.2	
2448	30x3½	Grey	2.09	.072	79¾	2880	720	2.0	2.5	3.0	86.3	93.6	2.9	3.5	
2461	30x3½	Grey	2.15	.078	81⅝	2545	765	2.0	5.3	4.5	71.5	89.0	7.4	6.3	
2365	30x3½	Green	2.20	.078	81⅝	2895	780	0	3.3	2.0	88.7	91.7	3.7	2.3	
2798	30x3½	Grey	2.12	.077	81¾	1960	830	7.0	2.8	3.0	77.5	89.9	3.6	3.9	
2593	30x3½	Grey	2.40	.088	Section	2420	840	2.0	2.8	4.4	82.3	91.8	3.4	5.3	
2594	30x3½	Grey	2.25	.073	82¾	2480	860	2.0	2.3	4.1	81.2	90.9	2.8	5.1	
2473	30x3½	Grey	2.10	.089	82¼	1840	965	2.0	3.4	5.3	92.2	93.8	3.7	5.7	
2317	30x3½	Grey	2.21	.064	82¼	2450	900	0	3.2	4.4	93.2	94.4	3.4	4.7	
2504	30x3½	Grey	2.14	.082	80⅞	2580	815	0	3.9	5.3	83.8	91.8	4.7	6.3	
2323	30x3½	Grey	2.12	.074	82¾	1935	805	2.0	2.7	3.3	92.9	94.1	2.9	3.6	
2409	30x3½	Grey	2.10	.080	81¼	2740	810	0							
2410	30x3½	Grey	2.22	.084	81½	1900	970	0	3.0	4.9	94.5	95.4	3.2	5.2	
2807	33x4	Grey	2.65	.092	90⅞	2995	765	4.0	1.6	2.8	87.1	93.6	1.8	3.2	
2380	30x3½	Grey	2.48	.098	80⅞	2345	790	1.0	2.6	3.5	88.9	93.1	2.9	3.9	
2403	30x3½	Grey	2.09	.086	83¾	2655	770	0	2.3	4.6	83.4	88.2	2.8	5.5	
2696	30x3½	Grey	2.26	.086	82¼	3000	805	1.0	3.0	3.7	90.8	94.7	3.3	4.1	
2641	30x3½	Grey	2.20	.070	82	2600	755	5.0	2.3	3.3	65.5	93.1	2.7	3.9	
2435	30x3½	Black	2.28	.088	84½	2655	825	0	3.1	2.7	87.5	91.4	3.5	3.1	
2398	30x3½	Grey	2.03	.070	81¾	2430	765	1.0	2.1	2.6	84.7	91.9	2.5	3.1	
2400	35x5	Red	3.60	.115	95½	2180	770	0	2.1	2.4	84.6	92.7	2.5	2.8	
2515	30x3½	Red	2.08	.086	80⅜	2735	790	0	3.3	2.6	90.3	95.3	3.7	2.9	
2369	30x3½	Grey	2.11	.076	82	2570	850	2.0	1.9	2.6	71.1	90.8	2.7	3.7	
2830					Section	2935	800	1.0	2.1	3.8	89.9	93.2	2.3	4.2	
2359	30x3½	Grey	2.25	.091	84½	3140	780	0	3.3	3.8	88.9	93.4	3.7	4.3	
2289	30x3½	Grey	2.12	.068	82¼	2670	830	0	3.1	4.2	88.8	94.4	3.5	4.7	
2457	30x3½	Grey	2.20	.094	80½	2775	805	0	3.5	4.8	90.6	94.0	3.9	5.3	
2465	30x3½	Grey	2.06	.079	80⅝	2550	775	0	3.1	3.2	87.0	94.4	3.6	3.7	
2510	30x3½	Grey	2.30	.074	81⅞	2430	785	0	3.3	4.1	87.2	92.1	3.8	4.7	
2625	30x3½	Grey	2.14	.086	82	2375	960	1.0	3.0	5.8	93.5	95.8	3.2	6.2	
2306	30x3½	Grey	2.06	.086	80¾	2665	755	7.0	3.2	3.5	80.1	92.0	4.0	4.4	
2386	30x3½	Grey	2.02	.079	81⅝	1855	950	0	2.8	3.9	95.2	96.6	2.8	4.1	
2484	28x3	Grey	1.98	.091	76½	1900	950	4.0	3.0	6.5	80.1	92.5	3.3	7.2	
						Class B									Antimony
2470	30x3½	Red			82½	2390	830	4.0	1.8	3.9	78.8	90.5	2.3	5.0	
2373	30x3½	Red	2.08	.073	81¾	2420	875	1.0	1.8	3.5	85.1	91.4	2.1	4.1	
2395	30x3½	Red	2.07	.093	81½	2920	765	0	2.8	4.1	79.1	89.2	3.6	5.2	
2588	30x3½	Red	2.11	.078	80½	2220	950	3.0	2.7	3.9	87.8	92.0	3.1	4.4	
2363	30x3½	Red	2.20	.075	80⅝	2540	775	6.0	2.2	5.0	74.2	87.6	3.0	6.7	
2660	30x3½	Red	2.10	.072	Section	3120	750	8.0	4.7	3.6	79.8	90.1	5.9	4.1	
2442	30x3½	Red	2.18	.091	82⅜	2810	785	0	2.7	4.3	87.3	93.8	3.1	4.9	
2285	33x4	Red	2.49	.083	89	2620	685	3.0	1.8	3.4	85.4	91.8	2.2	4.0	
2475	30x3½	Red	2.06	.073	83⅛	2380	880	7.0	2.6	3.4	82.3	93.3	3.2	4.1	
2505	30x3½	Red	2.32	.096	80½	2680	775	0	3.4	2.3	88.5	93.4	3.8	2.6	
2326	30x3½	Red	2.10	.059	81¼	2345	800	2.0	2.5	3.5	85.8	92.2	2.9	4.1	
2808	33x4	Red	2.65	.108	90¾	2640	735	5.0	2.8	2.9	85.1	93.3	3.3	3.4	
2300	30x3½	Red	2.19	.085	82⅝	3550	790	0	1.9	2.8	75.3	88.8	2.5	3.7	
2382	30x3½	Red	2.04	.083	79	2345	780	2.0	2.6	4.8	85.9	90.4	2.9	5.6	
2153	35x5	Red	3.88	.165-.620	81½	Out. 2515 In. 1815	860 810	7.0 6.0	3.1 3.5	5.1 2.5	83.1 81.0	91.1 93.1	3.7 4.3	6.1 3.1	
2437	36x6	Red	4.45	.150	Section	2280	890	8.0	2.8	4.7	80.0	91.3	3.5	5.9	
2367	30x3½	Red	2.10	.076	82	2380	890	7.0	2.6	3.4	82.3	93.3	3.2	4.1	
2828	30x3½	Red	2.19	.089	79¼	3265	810	1.0	2.7	2.9	89.7	94.7	3.0	3.2	
2388	30x3½	Red	2.00	.078	81¼	1870	850	5.0	3.0	4.0	84.2	92.3	3.6	4.8	
2485	30x3½	Red	2.20	.087	81½	3935	760	6.0	2.7	2.8	78.8	91.1	3.4	3.6	

Lot No.	Tire Fabric	No. of plies	Strength factor - lbs	Thickness of plies - ins	Thickness of cushion stock - ins	Width of breaker strip	Thickness of tread - ins: Total	Thickness of tread - ins: Exclusive of non-skid	Thickness of sidewall - ins	Friction - lbs	Tread: Tensile Strength Lbs per sq in	Tread: Ult Elong %	Tread: Set %	Sidewall: Tensile Strength Lbs per sq in	Sidewall: Ult Elong %	Sidewall: Set %	Length of chafing strip - ins	Length of reinforcing strip - ins	Diameter inflated to specified pressure - ins	Chemical Analysis	Remarks	Lot No.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Lot No.	Fabric	No. of plies	Thickness of plies - ins	Thickness of cushion - ins	Width of breaker strip - ins	Thickness of tread - ins: Total	Thickness of tread - ins: Exclusive of non-skid	Thickness of sidewall - ins	Friction - lbs	Tread: Tensile Strength Lbs per sq in	Tread: Ult Elong %	Tread: Set %	Sidewall: Tensile Strength Lbs per sq in	Sidewall: Ult Elong %	Sidewall: Set %	Length of chafing strip - ins	Length of reinforcing strip - ins	Diameter inflated to specified pressure - ins	Chemical Analysis: Ace Ext (Corr)	Chemical Analysis: Total Sulphur	Chemical Analysis: Rubber in compounds	Chemical Analysis: Rubber by volume	Chemical Analysis: Ratio Ace Ext / Rubber	Chemical Analysis: Sulphur to rubber	Remarks	Lot No.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]